

# FERAL EUROPEAN HONEY BEES: A MAJOR THREAT TO COCKATOOS AND OTHER TREE HOLLOW USERS

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Over the past ten years we have been carrying out a breeding biology study on four endemic Western Australian cockatoos namely: Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*, Baudin's Cockatoo *Calyptorhynchus baudinii*, Carnaby's Cockatoo *Calyptorhynchus latirostris* and the Western Long-billed Corella *Cacatua pastinator*. One of the aims of this project is to document and monitor nests with details of nest trees, hollow requirements and breeding site characteristics.

Of major concern to us is the large number of breeding hollows being taken over by the introduced European honey bee *Apis mellifera*. Although the impact on hollow nesting birds by the honey bee has often been implied, little data on this problem has been available.

During our study we have located 69 nests of the Forest Red-tailed Black Cockatoo, 16 of Baudin's Cockatoo, 110 of Carnaby's Cockatoo and 58 of Western Long-billed Corella. Overall, around 20% of breeding hollows in our study sites have been taken over by feral honey

bees and at some sites it is much higher – at one site 6 out of 12 i.e. 50% of breeding hollows have been invaded by bees.

Judging by the large number of hollows taken over it would appear that the honey bees actually have a preference for cockatoo hollows. Before egg laying, our black cockatoos make regular visits to the nest hollow, chewing the walls of the hollow back to new clean wood and forming a mat of wood chips on the floor of the hollow. It is now quite evident that these refurbished hollows are very attractive to swarming feral honey bees. Even when the invading hive has been killed, it takes between 18 months and 2 years before wax moths and other insects naturally clean out the hollow. During this time if the cockatoos re-use the hollow it is often re-invaded by swarming bees.

Also noteworthy is the large number of monitored hollows used by other species including Australian Ringneck, Red-capped Parrot, Boobook Owl and Sacred Kingfisher (some of which had nested in the same hollow



**Figure 1.** Stag Wandoo with 6 feral bee hives at Cataby 2004.

every year over 20 years) that were invaded by feral honey bees during this period. In a number of cases birds were incubating eggs or brooding chicks when the hollow was invaded by the swarm.

This clearly highlights the enormous problem of feral honey bees taking over hollows in southern forests and woodlands and we believe they pose a threat for the future conservation of many obligate hollow nesters. The strong tendency for honey bees to become feral, swarm and colonise new sites is now a major ecological problem in southern

forests and woodlands including Jarrah-Marri, Karri, Wandoo and Salmon Gum (Figures 1 and 2). At one of our study sites near Dandaragan we have located over 200 feral beehives in a narrow 3km stretch of Wandoo woodland on a creek line. Many of these are in hollows that have been previously used by cockatoos and other birds. Other areas regularly visited over the past 10 years e.g. Christmas Tree Well, Bungendore Park, Wungong, Serpentine, Bannister, Kojonup and Lake Muir show a marked increase in feral bee numbers. Some of this possibly is due in the Wheatbelt to canola crops that apparently stimulate



**Figure 2.** Swarming bees at Cataby in August 2006.

bees to swarm. This increase also applies to the Dongara-Jurien region where bees have colonised holes in limestone cliffs, caves and trees previously used by birds and in the Kununurra area where they have been introduced as crop pollinators. Of concern also is the fact that at one of our study sites (Bungendore Park) we have observed a number of small birds (Brown Honeyeater, White-cheeked Honeyeater and Western Little Wattlebird) killed by bee stings while feeding on flowering shrubs (in two of these the sting was still attached to the orbital skin).

Action is now urgently required to both increase research on the impact of feral honey bees and to

introduce control measures which could include:

1. Producing non-swarmed queen bees for the honey and pollination industry.
2. Eradication of feral hives in parks, gardens and reserves. This can be done by using trapping techniques such as "Swarm Catch" or with chemical control.
3. Use of mobile water/feeding stations with chemical or fungal additive that would be taken back to hives. These could be small temporary stations set up by land care groups, councils, government agencies etc. that could be set up in reserve areas to eradicate feral hives.
4. Use of queen bee excluders on commercial hives.